

ACCESSION #: 9601230218

LICENSEE EVENT REPORT (LER)

FACILITY NAME: OYSTER CREEK, UNIT 1 PAGE: 1 OF 5

DOCKET NUMBER: 05000219

TITLE: Reactor Scram on High RPV Pressure Due to a Main
Generator Runback

EVENT DATE: 12/18/95 LER #: 95-008- REPORT DATE:

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: Thomas S. Corcoran, Plant Operations TELEPHONE: (609) 971-4986
Engineer

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 12/18/95 at 0437 hours a reactor scram and turbine trip occurred due to high reactor pressure. The cause of the event was a generator runback due to high stator cooling water temperature. The elevated cooling water temperature was caused by the failure of the system temperature control valve to properly regulate cooling water temperature. When cooling water temperature reached the high temperature setpoint of 89 Degrees C, the generator protection system initiated a turbine generator runback. The closing of the turbine control valves beyond the limit of the bypass valves reduced the mass flow

capability of the turbine control system and reactor pressure increased. When reactor pressure reached the high pressure scram setpoint of 1045 psig, a reactor scram occurred as designed. Reactor power peaked at 108.5 % power during the pressure transient. After the scram, reactor water level dropped below the low level scram setpoint (139.48 in. TAF) to a level of 97 in. TAF and then was recovered in accordance with plant procedures. The faulty temperature control valve was repaired and the stator cooling system was returned to operational status.

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DATE OF OCCURRENCE

The event occurred on December 18, 1995, at 0437 hours.

IDENTIFICATION OF OCCURRENCE

On December 18, 1995, at 0437 hours the reactor automatically scrambled due to a high reactor pressure signal from the Reactor Protection System (EHS JC). Reactor pressure reached the high (1045 psig) setpoint and initiated a reactor scram as designed. This event is reportable under 10CFR50.73(a)(2)(IV).

CONDITIONS PRIOR TO OCCURRENCE

The reactor was in the RUN mode at 1928 MWth (99.9% of full power) operating at a reactor pressure of 1020 psig.

DESCRIPTION OF OCCURRENCE

The initiating event was failure of the stator cooling temperature control valve (EHS TCV) (Valve V-Y-7) which allowed system temperature to increase above the temperature setpoint (89 Degrees C) resulting in a generator runback. In response to the runback, the turbine speed load changer pulsed closed the turbine control valves. This in turn caused the turbine bypass valves to open in order to control reactor pressure.

When the control valves were closed beyond the 55% open position, the bypass valves reached their 100% open position (45% flow capability) and reactor pressure began to increase. Reactor pressure increased to approximately 1047 psig and the reactor scrammed. Reactor power increased to approximately 108.5% power during the pressure transient (scram setpoint, a function of reactor recirculation flow, was approximately 112%). Following the scram, reactor water level dropped below the low level scram setpoint (139.48 in. TAF) to a level of 97 in. TAF and a second scram signal was received. Level was subsequently recovered and a plant cooldown was commenced in accordance with plant procedures.

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APPARENT CAUSE OF OCCURRENCE

The root cause of this event was determined to be failure of the stator cooling temperature regulating valve to control stator cooling water temperature. The feedback arm for the valve controller failed in such a way that the controller responded as if system inlet temperature was lower than actual. This resulted in the valve bypassing more flow around the system heat exchangers and elevating system temperature. Analysis of system temperature data revealed an increasing temperature trend in the system during the three days prior to the event. On December 15, 1995, Stator Cooling Inlet temperature started to drift up from its normal temperature control point of 40 Degrees C. Inlet and outlet temperatures

continued to rise at approximately 0.4 Degrees C per hour.

A significant contributing cause to the event was the reduced availability of system monitoring equipment. There are two recorders in the plant that provide input into Control Room alarms which monitor stator temperatures. They are as follows:

- o Generator Stator Cooling System Multi-Channel Recorder

UR-713-9. This recorder monitors stator cooling water temperatures and flow. This recorder was out of service and removed from its panel prior to this event. The recorder was removed on September 23, 1995, due to a failed power supply.

The recorder provides input to the STATOR CLG TROUBLE Alarm.

This input was disabled and no direction was provided to the operators on alternate data points to observe. In this case, alternate data points were available on a rear panel recorder, although this recorder does not have an alarm function. The Equipment Operator logs the recorder temperatures on a daily basis when recorder UR-713-9 is available.

- o Generator Temperature Monitor TI-711-1. This monitors various stator related temperatures and provides input to the STATOR TEMP HI Alarm. Although operable at the time of the event, the Control Room Alarm was locked in due to two points being in the alarm condition thus masking further alarms.

The significance of this is as follows:

If recorder UR-713-9 was operable, this event could have been avoided.

The recorder would have provided an alarm on high stator cooling inlet temperature at 48 Degrees C . The alarm would have been received at approximately 0815 hours on December 16, 1995, (Saturday). This would have led to system troubleshooting and determination that temperature control valve V-Y-7 was malfunctioning.

If monitor TI-711-1 did not have two locked in alarms, the Control Room would have received alarms (with local printout of temperatures) starting at approximately 0200 hours on December 17, 1995 (Sunday). These indications would have shown various stator cooling temperatures above their respective alarm setpoint

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APPARENT CAUSE OF OCCURRENCE (Con't)

By the time the STATOR CLG TROUBLE alarm was received, a runback was in progress and operator action could not prevent the turbine response and plant scram.

ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT

The high reactor pressure scram is set at 1045 psig to assure never reaching the reactor coolant system pressure safety limit (1375 psig) as well as assuring the system pressure does not exceed the range of the fuel cladding integrity safety limit.

The generator runback and subsequent reactor pressure transient was rapid and did not allow the operators sufficient time to assess the plant

condition and to take actions to reduce reactor power and avert the scram condition. A Post Transient Review Group was convened to review the event. Review of logs, charts, and computer data, in addition to interviews of personnel involved in the event, indicated that plant response was normal.

During this event, the Reactor Protection System operated as designed. Based upon the above discussion, the safety significance of the scram event is considered to be minimal.

CORRECTIVE ACTION

The following corrective actions were completed prior to plant startup,

- o The locked in alarms on Temperature Monitor TI-711-1 were cleared.
- o System recorder UR-713-9 was repaired and returned to service.
- o Temperature Control Valve V-Y-7 was repaired and returned to service.
- o Existing out of service indications and instruments were reviewed for conditions which could hamper or delay operator response.

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CORRECTIVE ACTION (Con't.)

The following corrective actions have been completed:

- o The Director of Oyster Creek issued a Human Performance Eye Opener documenting the importance of identifying problems, promptly getting

them fixed, and making sure suitable interim measures are in place.

The following corrective actions will be completed:

- o Preventive maintenance practices with regard to the Stator Cooling Temperature Control Valve V-Y-7 will be reviewed and revised/improved as required.
- o Development of a process by which alternate data points are monitored and recorded when critical plant monitors/recorders are out of service.

FAILURE DATA

Tag No. V-Y-0007

Component, Generator Stator Coolant Temperature Control Valve (Three Way Valve)

Model: 667Y

Manufacturer: Fisher Controls Company Incorporated

SIMILAR EVENTS

None

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GPU Nuclear Corporation

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Route 9 South

Forked River, New Jersey 08731 -0388

609 971-4000

Writer's Direct Dial Number:

January 18, 1996

6730-96-2014

U. S. Nuclear Regulatory Commission

Attn.: Document Control Desk

Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station

Docket No. 50-219

Licensee Event Report 95-008

Enclosed is Licensee Event Report 95-008. This event did not impact the health and safety of the public.

If any additional information or assistance is required, please contact

Brenda DeMerchant of my staff at 609.971.4642.

Michael B. Roche

Vice President and Director

Oyster Creek

MBR/BDEM/gl

Enclosure

cc: Oyster Creek NRC Project Manager

Administrator, Region I

Senior Resident Inspector

GPU Nuclear Corporation is a subsidiary of General Public

Utilities Corporation

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